

IN THE CLAIMS

Please amend claims 1, 5, 8-14, 17, 19, and 23 and cancel claim 7 as indicated in the complete listing of all claims in the application set forth below.

1. (Currently Amended) A process for preparing carbohydrate fatty-acid esters comprising the steps of:

(a) reacting, by solvent free trans-acidolysis, acylated carbohydrate with free fatty acid in the presence of an acid catalyst, under reduced pressure in the range of about 4 - 20 Torr;

(b) decolorizing and separating out the unreacted fatty acid, from the reaction mixture obtained in step (a);

(c) precipitating out the unreacted acylated carbohydrate from the reaction mixture obtained in step (b); and

(d) recovering carbohydrate fatty ester from the reaction mixture obtained in step (C).

2. (Original) The process of preparing carbohydrate fatty-acid esters of Claim 1, wherein in step (a), no solvent is added thereto.

3. (Original) The process of preparing carbohydrate fatty-acid esters of claim 1, wherein in the unreacted fatty-acid in the

reaction mixture in step (b) is removed by precipitation from a solvent mixture at controlled temperature.

4. (Original) The process of preparing carbohydrate fatty-acid esters of claim 1, wherein the unreacted fatty-acid in the reaction mixture in step (b) is removed from the reaction mixture by solvent extraction.

5. (Currently Amended) The process of preparing carbohydrate fatty acid ester of claim 1 wherein the unreacted acylated carbohydrate is precipitated out in step (c) by cooling the reaction mixture in step (b) to a temperature in the range of about -4 to about 10 degree C.

6. (Original) The process of preparing carbohydrate fatty acid esters of claim 1, wherein the unreacted free fatty acids and the unreacted C2 or C3-acylated carbohydrate esters which are removed during purification steps (b) and (c) are recycled to the reactant mixture.

7. (Canceled)

8. (Currently Amended) The process of preparing carbohydrate fatty-acid ester of claim 1 wherein step (a) is carried out at a pressure in the range of about 5-10 Torr.

9. (Currently Amended) The process of preparing carbohydrate fatty-acid esters of Claim 1, wherein mono-, di- and poly-fatty acid esters of C2- or C3-acylated carbohydrates of various Hydrophile-Lipophile-Balance (HLB) values are obtained.

10. (Currently Amended) The process of preparing carbohydrate fatty-acid esters of Claim 1, wherein the Hydrophile-Lipophile-Balance (HLB) values of the product carbohydrate fatty-acid esters are in the range of about 1 to about 10.

11. (Currently Amended) The process of preparing carbohydrate fatty-acid esters of Claim 1, further comprising the steps of:

(e) liberating free hydroxyl groups by partial hydrolysis of the C2- or C3-acylated carbohydrate fatty acid ester in the presence of an acid catalyst for a predetermined period of time to obtain carbohydrate fatty acid ester having free hydroxyl groups of predetermined Hydrophile-Lipophile-Balance (HLB) values.

12. (Currently Amended) The process of preparing carbohydrate fatty acid esters of claim 11, wherein the HLB values of the

product carbohydrate fatty-acid esters are in the range of about 8 to about 16.

13. (Currently Amended) The process of preparing carbohydrate fatty-acid esters of Claim 1, wherein step (a) is processed at a temperature ranging from about 60 to about 95 degree C.

14. (Currently Amended) A process of preparing carbohydrate fatty acid esters comprising the steps of:

(a) reacting, by solvent-free trans-acidolysis, acylated carbohydrate with free fatty acid in the presence of an acid catalyst, under reduced pressure in the range of about 4 - 20 Torr;

(b) decolorizing and separating out the unreacted fatty acid, from the reaction mixture obtained in step (a);

(c) precipitating out the unreacted acylated carbohydrate from the reaction mixture obtained in step (b);

(d) removing the unreacted free fatty acids and carbohydrate esters of low molecular-weight carboxylic acids during purification, and recycling the removed unreacted free fatty acids and carbohydrate esters to the starting reactant mixture; and

(e) liberating free hydroxyl groups by partial hydrolysis of the acylated carbohydrate fatty acid ester in the presence of an acid catalyst for a predetermined period of time to obtain

carbohydrate fatty acid ester having free hydroxyl groups of predetermined Hydrophile-Lipophile-Balance (HLB) values.

15. (Original) Carbohydrate fatty-acid esters produced in accordance with the process of claim 1 or 14.

16. (Previously Presented) The process according to claims 1 or 14 wherein the reactant carbohydrates include the group consisting of partially or peracylated mono-, di- and tri-saccharides in which the monosaccharide unit(s) is selected from the group consisting of furanosyl, pyranosyl or a C2-C6 open-chain structure.

17. (Currently Amended) The process according to claims ~~1~~ or 14 ~~or 16~~ wherein the acyl group in the reactant acylated carbohydrates is acetic or propanoic acyl group.

18. (Previously Presented) The process according to claims 1 or 14 wherein, the acid catalysts includes sulphuric or camphorsulfonic acid, in the case of the monosaccharides; or boron trifluoride diethyl etherate, alkyl sulphonic acid polysiloxanes or tosylic acid, in the case of the di- and tri-saccharides.

19. (Currently Amended) The process according to claims 1 or 14 wherein in step (b) the workup solvents includes are used to remove the unreacted fatty acid from the reaction mixture, said solvents selected from the group consisting of water, ethanol, isopropanol, n-propanol, and ethyl acetate, and mixtures thereof.

20. (Original) The process according to claims 4 wherein the extraction solvent is hexane.

21. (Previously Presented) The process according to claims 1 or 14 wherein the free fatty acids have C6-C22 chain-length, with zero, mono or di-unsaturations.

22. (Original) The process according to claims 11 or 14 wherein the hydrolysis acid catalyst is trifluoroacetic acid.

23. (Original) The process according to claims 11 or 14 wherein the partially hydrolysed carbohydrate fatty acid esters are further separated by stage cooling, at controlled temperature ranging from about -15 to about 10 degree C, according to their degree of acylation.